

CLAIM AMENDMENTS

1. (Currently Amended) A blower comprising: an impeller having an outer diameter and on which a plurality of axial flow blades are ~~arranged while~~ mounted at circumferential intervals ~~to on~~ an outer peripheral surface of a boss;
a case surrounding the impeller; and
a bell mouth having an inner diameter and cylindrically constricted ~~so as~~ to guide a gas into the case, ~~characterized in that an~~ wherein the inner diameter of the bell mouth is smaller than ~~an~~ the outer diameter of the impeller.

2. (Currently Amended) ~~A~~ The blower according to Claim 1, ~~characterized in that a dimension of~~ wherein the inner diameter of the bell mouth is at least 50% ~~or more of a dimension~~ of the outer diameter of the impeller.

3. (Currently Amended) A blower according to Claim 1, ~~characterized in that~~ wherein an inner face of a constricting portion extending from an expansion diameter side end portion to a reduction diameter side end portion of the bell mouth ~~is formed as~~ has a curved surface spaced apart from a rotation center axis of the impeller by a distance that is circumferentially uneven.

4. (Currently Amended) A blower comprising:
an impeller having an outer diameter and on which a plurality of blades are ~~arranged while~~ mounted at circumferential intervals to an outer peripheral surface of a boss;
a case surrounding the impeller; and
a bell mouth having an inner diameter and cylindrically constricted ~~so as~~ to guide a gas into the case, ~~characterized in that an~~ wherein the inner diameter of the bell mouth is smaller than ~~an~~ the outer diameter of the impeller, and ~~that~~ a portion of the blade portion situated on an outer peripheral side of the inner diameter of the bell mouth protrudes from a reduction diameter side end portion toward an expansion diameter side end portion of the bell mouth in a direction along a rotation center axis of the impeller.

5. (Currently Amended) ~~A~~ The blower according to Claim 4, ~~characterized in that~~ wherein,
when the blades of the impeller are projected onto a plane perpendicular to the rotation center axis ~~thereof~~ of the impeller, each of curves ~~that are~~ formed by connecting

center points of arc lengths of circumferentially extending arcs formed through overlapping of concentric circles, which radially extend around an intersection point of the plane and the rotation center axis, and the projected blades, is defined as a circumferential center curve,

when an angle made by a straight line connecting the intersection point and a boss-side end point of the circumferential center curve and by a straight line connecting the intersection point and an arbitrary point in the circumferential center curve is defined as a forward angle θ with a rotating direction of the blades taken as positive, and

when a change ratio per unit radial length of the forward angle θ is defined as an advance ratio, each blade has, in a radial direction, a sweepforward wing portion which is on a boss side and which exhibits a positive value of the advance ratio, and a sweepback wing portion which is on an outer peripheral side of the blade and which exhibits a negative value of the advance ratio, with the arc length of each blade increasing from the boss side toward the outer peripheral side.

6. (Currently Amended) ~~A. The blower according to Claim 5, characterized in that~~ wherein a portion of the sweepback wing portion protrudes from the reduction diameter side end portion toward the expansion diameter side end portion of the bell mouth in a direction along the rotation center axis of the impeller.

7. (Currently Amended) A blower comprising a boss and a plurality of blades mounted at circumferential intervals to an outer peripheral surface of the boss, ~~characterized in that~~ wherein,

when the blades of the impeller are projected onto a plane perpendicular to the rotation center axis ~~thereof of the impeller~~, each of curves ~~that are~~ formed by connecting center points of arc lengths of circumferentially extending arcs, formed through overlapping of concentric circles, which radially extend around an intersection point of the plane and the rotation center axis, and the projected blades, is defined as a circumferential center curve,

when an angle made by a straight line connecting the intersection point and a boss-side end point of the circumferential center curve and by a straight line connecting the intersection point and an arbitrary point in the circumferential center curve is defined as a forward angle θ with a rotating direction of the blades taken as positive, and

when a change ratio per unit radial length of the forward angle θ is defined as an advance ratio, each blade has, in a radial direction, a sweepforward wing portion which is

on a boss side and which exhibits a positive value of the advance ratio, and a sweepback wing portion which is on an outer peripheral side of the blade and which exhibits a negative value of the advance ratio, with the arc length of each blade increasing from the boss side toward the outer peripheral side.

8. (Currently Amended) ~~A~~ The blower according to Claim 7, characterized in that the blower comprises further comprising a case surrounding the blades, and a bell mouth having an inner diameter and cylindrically constricted so as to guide a gas into the case, and that an wherein the inner diameter of the bell mouth is smaller than an outer diameter of the blades.

9. (Currently Amended) ~~A~~ The blower according to Claim 8, characterized in that wherein a boundary portion constituting a boundary between the sweepforward wing portion and the sweepback wing portion substantially coincides with the inner diameter of the bell mouth.

10. (Currently Amended) ~~A~~ The blower according to Claim 8, characterized in that wherein a boundary portion constituting a boundary between the sweepforward wing portion and the sweepback wing portion is situated on an outer peripheral side of the inner diameter of the bell mouth.

11. (Currently Amended) ~~A~~ The blower according to Claim 8 9, characterized in that a ratio of a wherein diameter of the boundary portion to has a ratio to the inner diameter of the bell mouth ~~ranges~~ ranging from 80% to 130%.

12. (Currently Amended) ~~A~~ The blower according to Claim 11, characterized in that wherein the ratio ranges from 100% to 110%.

13. (Currently Amended) ~~A~~ The blower according to Claim 7, characterized in that wherein an inner face of a constricting portion extending from an expansion diameter side end portion to a reduction diameter side end portion of the bell mouth is ~~formed as~~ a curved surface which is spaced apart from the rotation center axis of the impeller by a distance that is circumferentially uneven.

14. (Currently Amended) ~~A~~ The blower according to Claim 7, ~~characterized in that wherein,~~

when a straight line extended from a center point of a height in a direction of the rotation center axis at a portion of each blade in contact with the boss to an outer peripheral portion of the blade ~~perpendicularly,~~ perpendicular to the rotation center axis, is defined as a straight line V,

when a line obtained by connecting center points of the height in the direction of the rotation center axis at each radius of the blade is defined as a radial direction center line Z, and when a line connecting the center line and an arbitrary point in the radial direction center line Z is defined as a straight line Y, the straight line Y is inclined toward a gas suction side with respect to the straight line V.

15. (Currently Amended) ~~A~~ The blower according to Claim 7, ~~characterized in that wherein,~~ in the circumferential center curve of the sweepforward wing portion, an angle of inclination of a tangent to the circumferential center curve increases gradually and ~~to a large degree~~ toward a gas discharge side as the circumferential center curve extends from the boss side toward a boundary portion side, and ~~that~~ the angle of inclination of the tangent to the circumferential center curve increases gradually and ~~to a large degree~~ toward a gas suction side as the circumferential center curve extends from the boundary portion side toward the outer peripheral side.

16. (Currently Amended) ~~A~~ The blower according to Claim 7, ~~characterized in that wherein~~ the sweepback wing portion of each of the blades has an advance ratio ranging from -2.0 (°/mm) to -2.9 (°/mm).